

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P801493/WO/1	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/DE2004/001425	International filing date (day/month/year) 03.07.2004	Priority date (day/month/year) 11.07.2003
International Patent Classification (IPC) or national classification and IPC C23C10/30, C23C10/48		
Applicant MTU AERO ENGINES GMBH		

1.	This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.	
2.	This REPORT consists of a total of <u>7</u> sheets, including this cover sheet.	
3.	This report is also accompanied by ANNEXES, comprising: a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>3</u> sheets, as follows: <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).	
4.	This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application	

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____ which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-6 _____ as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. _____ as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* 1-15 _____ received by this Authority on 11.05.2005 with letter
- nos.* _____ received by this Authority on of 11.05.2005
- ☒ the drawings:
- sheets 1/1 _____ as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____
- ☐ any table(s) related to sequence listing (specify): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (specify): _____
- ☐ any table(s) related to sequence listing (specify): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1-15	YES
	Claims		NO
Inventive step (IS)	Claims	1-15	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-15	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
1. Reference is made to the following documents:			
D1: EP-A-1 079 002 (GEN ELECTRIC), 28 February 2001 (2001-02-28)			
D2: US 2002/094445 A1 (SANGEETA D ET AL), 18 July 2002 (2002-07-18)			
D3: PATENT ABSTRACTS OF JAPAN, Vol. 0174, No. 75 (C-1103), 30 August 1993 (1993-08-30) & JP 5 117066 A (ISHIKAW AJIMA HARIMA HEAVY IND CO LTD), 14 May 1993 (1993-05-14)			
D4: US-A-4 528 215 (BALDI ALFONSO L ET AL), 9 July 1985 (1985-07-09)			
1.1 Document D1 discloses a method for producing a coating for a component, in which the component is coated with a platinum paste, subjected to heat treatment and then aluminised (see examples 1 to 7).			
1.2 Document D2 discloses a method for producing a coating for a component, in which the component is coated with a platinum paste, subjected to heat treatment and then aluminised (see examples 1 to 7).			

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
	<p>1.3 Document D3 discloses the coating of a component with a platinum paste, heating of the component and then aluminisation of the component.</p> <p>1.4 Document D4 discloses a device for coating a gas turbine component using a pack method in which different regions of the blades are aluminised with different materials at the same time.</p> <p>2. The subject matter of claim 1 differs from the methods known from D1, D2, D3 and D4 in that a covering powder is applied to the component region which is to be aluminised with aluminising powder or aluminising paste, and both are placed under the influence of gravity.</p> <p>The subject matter of claim 1 therefore meets the PCT requirements in respect of novelty.</p> <p>The subject matter of claim 13 differs from the devices known from D1, D2, D3 and D4 in that the component can be positioned in the pack in such a way that the aluminising paste and covering powder introduced into the pack act under the influence of gravity on the component region that is to be coated.</p> <p>The subject matter of claim 13 therefore meets the PCT requirements in respect of novelty.</p> <p>3. Document D4 is considered to be the closest prior art because it discloses a method for producing a corrosion-resistant and oxidation-resistant coating, in which turbine blades are aluminised using a pack method</p>

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and different regions of the blades are aluminised with different materials at the same time. The subject matter of claim 1 differs from that of D4 in that the aluminising paste or powder is completely covered by a covering powder under the influence of gravity.

The technical effect of this feature is that only a particular portion of the blade (previously coated with platinum) is aluminised.

D4 discloses an aluminisation method in which the component to be aluminised is completely buried in the aluminising powder. Partial aluminisation is not possible.

Thus the objective problem addressed by the present invention is that of modifying the method of D4 so as to provide a simple way to allow partial aluminisation of a component.

According to claim 1 this problem is solved by covering the aluminising paste or powder completely with a covering powder under the influence of gravity. In this way the portion of the component which is to be aluminised is brought into contact with the aluminising powder or paste and the aluminising powder or paste is sealed against the environment by the covering powder so that the aluminising substance in the paste or powder can diffuse into the component but does not evaporate from the surface. This ensures that there is no condensation of evaporation material in unwanted places and the aluminisation is localised.

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The influence of gravity on the two layers makes the entire process easy to carry out in batch mode.

This solution is not obvious for the following reasons:

As already mentioned, D4 discloses only a method for complete aluminisation and does not contain anything to suggest how to achieve partial aluminisation. D1 and D2 disclose only aluminisation methods in which an aluminisation paste is applied to the area which is to be aluminised. Evaporation is not prevented, which means that unintentional aluminisation of another region may also occur.

On the basis of D4 a person skilled in the art would not be able to arrive at the features specified in claims 1 and 13.

The subject matter of claims 1 and 13 therefore meets the PCT requirements in respect of inventive step.

4. Claims 2 to 12 and 14 to 15 are dependent on claims 1 and 13 respectively, and therefore also meet the PCT requirements in respect of novelty and inventive step.

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

1. The phrase "more particularly" in claim 13 does not have any limiting effect on the scope of the claim.
2. The features of device claims 13 to 15 relate to a method for using the device rather than to the definition of the device in terms of its technical features. The intended limitations are therefore not clear from the claims (PCT Article 6).
3. Contrary to the requirements of PCT Rule 5.1(a)(ii), the description does not cite document D4 and also fails to give an account of the relevant prior art disclosed therein.
4. The description is not consistent with the claims (PCT Rule 5.1(a)(iii)).